

## WEST

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File: USPT

DOCUMENT-IDENTIFIER: US 6403315 B1

TITLE: Method and apparatus for DNA sequencing and DNA identification

Detailed Description Text (123):

Using the described theoretical principles as a guide for experiments, reliable hybridizations have been obtained with probes six to eight nucleotides in length. All experiments were performed with a floating plastic sheet providing a film of hybridization solution above the filter. This procedure allows maximal reduction in the amount of probe, and thus reduced label costs in dot blot hybridizations. The high concentration of sodium lauroyl sarcosine instead of sodium lauroyl sulfate in the phosphate hybridization buffer allows dropping the reaction from room temperature down to 12.degree. C. Similarly, the 4-6-times.SSC, 10% sodium lauroyl sarcosine buffer allows hybridization at temperatures as low as 2.degree. C. The detergent in these buffers is for obtaining tolerable background with up to 40 nM concentrations of labelled probe. Preliminary characterization of the thermal stability of short oligonucleotide hybrids was determined on a prototype octamer with 50% G+C content, i.e. probe of sequence TGCTCATG. The theoretical expectation is that this probe is among the less stable octamers. Its transition enthalpy is similar to those of more stable heptamers or, even to probes 6 nucleotides in length (Bresslauer et al., Proc. Natl. Acad. Sci. U.S.A. 83: 3746 (1986)). Parameter T.sub.d, the temperature at which 50% of the hybrid is melted in unit time of a minute is 18.degree. C. The result shows that T.sub.d is 15.degree. C. lower for the 8 bp hybrid than for an 11 bp duplex [Wallace et al., Nucleic Acids Res. 6: 3543 (1979)].

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<i>DB=USPT,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ</i>			
<u>L17</u>	breslauer	228	<u>L17</u>
<u>L16</u>	breuslauer	0	<u>L16</u>
<u>L15</u>	enthalpy same nucleic same acid same duplex	19	<u>L15</u>
<u>L14</u>	screen\$ adj thermostab\$ same equil\$ same duplex	0	<u>L14</u>
<u>L13</u>	screen\$ same thermostab\$ same equil\$ same duplex	0	<u>L13</u>
<u>L12</u>	thermostab\$ same (mismatch\$ or exocyclic or polymorph\$) same duplex same thermal	0	<u>L12</u>
<u>L11</u>	screen\$ same nucleic\$ same acid same duplex\$ same stability adj label\$ adj energ\$	0	<u>L11</u>
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<u>L1</u>	screen\$ same nucleic same acid same duplex same stability	13	<u>L1</u>

END OF SEARCH HISTORY

**Maupin, Christin**

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**To:** STIC-ILL  
**Subject:** screening nuclei acid duplex stability 09/869004

**Sensitivity:** Private

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